

SCARBOROUGH J., *Pharmaceutical Theory in Galen's Commentaries on the Hippocratic Epidemics: Some observation on Roman Views of Greek Drug Lore*, Die Hippokratischen Epidemien, Actes V Colloque International hippocratique, Franz Steiner Verlag, Stuttgart, 10/15 Sept. 1984, pp. 271-282.

SCARBOROUGH J., *Text and sources in Ancient Pharmacy*, Pharmacy in History 1987, 29, pp. 81-84 e 133-139.

SCARBOROUGH J., *The Pharmacology of Sacred Roots, Plants and Herbs*, in FARAO-NE C., OBBINK D., eds., *Accessing the Divine: Studies in Greek Magic and Religion*, Oxford University Press, Oxford, 1988.

MASCHERPA P., *Il controllo sperimentale degli antichi farmaci*, Giardini, Pisa, 1955.

MENEGHETTI N., *Tecnica farmaceutica dei romani*, Tip. Ed. Trevigiana, Treviso, 1965.

Per la tradizione degli erbari nell'Antichità, si veda :

SINGER C., *The herbal in Antiquity and its trasmission to Later Ages*, Journal of Hellenic Studies 1927, 47: 1-51.

STANNARD J., *The Herbal as a Medical Document*, Bulletin of the History of Medicine 1969, 43: 212-220.

BLUNT W., SANDRA R., *The illustrated Herbal*, Thames and Hudson, N.Y., 1979.

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THE BEGINNING OF THE PHARMACOPOEIA BETWEEN 15th
AND 17th CENTURIES. FROM THE *RICETTARIO*
FIorentINO TO THE *PHARMACOPEA BERGAMENSIS*
AND THE *ANTIDOTARIA*

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SUMMARY

The beginning of pharmacopoeias is conventionally attributed to the rules enunciated in around 1220 by the emperor Frederick II. In the following centuries Antidotaria were approved by the authorities, whereas the Nuovo Ricettario Fiorentino was published in 1498 and gathered knowledge derived from Greek, Hellenistic and Arabic Medicine.

With the regulation of pharmaceutical art, increasingly more independent as regards medicine, following the enunciation of rules, in around 1220 by Frederick II, emperor and king of Sicily, in every City-State, a necessity was felt to provide for *Ricettari* and *Antidotari* of an official nature, that is, no longer compiled by a single person but by a group of experts supervised and approved by the authorities.

In this way the governors set themselves the goal of eliminating abstruseness, charlatanry, magic, and sophistications; to protect the ill person, guaranteeing an adequate public service, eliminating the disorder and liberty with which pharmaceutical art was sometimes exercised.

Already in the past certain *Antidotari* had been approved by the authorities (and adopted as official) which obliged pharmacists to observe the contents, like for example that of Niccolò Alessandrino or of Mirepso, in Paris in 1300, and those of Avicenna and Arnaldus di Villanova in Heidelberg in 1471.

Parole chiave/Key Words: Middle Ages-Pharmacopoeia-Antidotaria-Ricettario Fiorentino

However, these texts had only the effect of being official and not the origin, not having been compiled by order of the authorities and ratified by these, with the relative sanctions, and which, for the protection of public safety, put in order the rules to follow for the preparation of medicaments and for the exercise of the pharmaceutical profession.

Following on from this initial period in pharmaceutical literature is that of the official codes and this period begins with the *Ricettario Fiorentino*, which was composed in the second half of 1400, by the

Famosissimo Collegio degli eximii doctori della arte et medicina della inclipta città di Firenze, ad instantia delli Signori Chonsoli della università degli speciali e per utilità comune et publica, la quale piu è degna della privata.

The very famous College of the honourable doctors of art and medicine of the very famous city of Florence, instigated by the *Signori Chonsoli* of the University of pharmacists and for common and public utility, which is more worthy than the private.

The *Nuovo Ricettario Fiorentino* was published in 1498 (printed in the *inclipta città di Firenze per la compagnia del Dragho adì XXI di genaio MCCCCLXXXVIII*).

To demonstrate its official character the frontespiece carried the seal of the *Università deli Spetiali*, which represents the Madonna who holds to her breast the child Jesus, with underneath in a smaller picture, a winged dragon and at the bottom the letters A.M.A.

The *Ricettario* was defined as being new, not because there existed preceeding editions (we have heard, although without confirmation, of an edition of 1490), but only because it was to be considered new compared to the great number which existed at the time.

The works of Mesue, Niccolò, Avicenna, Galeno, Rhazes (quoted as Lalmansore from his *Liber medicinalis Almansoris*, thus named because it was dedicated to *Almasor*, Prince of

Chorasan), served as a basis for the compilation but were stripped of those things of a superficial nature and not considered necessary, correcting the prescriptions and admitting also all that could be ordered from doctors who practised legally in the city.

The Authority of the two Arts, of the pharmacist, in which the most illustrious Florentine, Dante Alighieri participated, and of doctors, was such that it could submit, to the observance of the pharmaceutical code, doctors and pharmacists, not only of the city but also of the surrounding country and of the district, even without the intervention of the magistrate, so that all pharmacists had to make the same preparations and compositions according to the rules established.

This might be sufficient to prevent doctors and pharmacists from committing errors, if of course that which was prescribed was carried out with faith, love, study and diligence achieving in the eyes of God recompense and great reward.

In the *Proemio* the motives which pushed the Florentine authorities to promote such a publication are mentioned and the aims hopefully to be reached with such an act.

From the above-mentioned *proemio* one deduces how, at the time, there were circulating many *ricettari*, which, with their diversity were the cause of errors in the composition of medicaments and therefore dangerous for the infirm: the art of the Pharmacists of Florence turned therefore to the College of Doctors pleading with them to compile a *Ricettario* which could serve with equal security the exercise of pharmacy and medicine.

Obviously the College of Doctors accepted the invitation which had been proposed, in the compilation of the work, not to be obscure or verbose, to eliminate superfluous things and insert those which according to them seemed necessary; they admitted, besides, all the prescriptions corrected of errors and all those things which the doctors of the city usually ordered. However, they did not distance themselves from what Galen in his therapeutic books, Razhes in *Ketaab altebb Al-Mansuri*, Avicenna in *Canon medicinae*.

Published in Florence in 1498, the *Ricettario Fiorentino* is, without doubt, the first *public* pharmacopoeia, a book which, written by order of the authorities and ratified by them with due sanctions, indicates the medicaments to be kept in pharmaceutical workshops and the rules to follow in their preparation, forming in this way a sort of code which, while caring for public health served as guide for doctors and pharmacists.

The work is divided into three books: the first book deals with the choice, the preparation and conservation of the simples; in the second are described the various types of syrups, pills, bitter and sweet *lattovari*¹, *trocisci*², etc; in the third there are certain necessary norms concerning preparation (e.g. washing, trituration), composition and conservation.

Let us examine in a more accurate way the single books:

The first, divided into twelve *doctrines* (chapters), concerns the general part of pharmacy and is entitled *Della bottega dello speziale e dei libri ch'esso deve tenersi* (On the workshop of the pharmacist and on the books that he must keep); (doctrine 1st and 2nd): the pharmacy should be in a place suitable for the conservation of medicaments away from dust, sun, damp and smoke; then the pharmacist, apart from the *Ricettario Fiorentino*, should keep books like a herbalist, as is Symon Genovese, le *Pandette*, the fourth of the *Servant*³. Then there are indicated month by month (beginning the year from March, according to Florentine use) all the plants, flowers, seeds, roots and bark which the pharmacist must gather, with the addition also of the method of conservation (doctrine 3rd and 4th). The 5th doctrine concerns conservation of *laxative simples* like the starred tablet (lapis-lazuli), *luf* or *serpentaria*; the 6th and 7th doctrines deal with the conservation of the sweet and bitter electuaries, pills, powders, poultices, ointments etc. It is interesting to note that also the vessels and recipients where they were to be conserved are indicated. On the other hand, the 9th doctrine deals with how precious things used by the pharmacist can be falsified, for example aloeswood, amber, camphor, ivory; this is to allow the pharmacist to distinguish the false from the true.

There follows in the 10th doctrine a note of the simple things that the pharmacist must keep in the workshop, subdivided in this way: Seeds-Fruit-Flowers-Leaves-Woods-Rinds-Barbs (roots and rhizomes)-Juices-Rubbers-Bone-Entrails and flesh of animals-Fats-Biles-Dungs-Fragments precious (stones)-Salts-Metals-Earths.

Now these distinctions are not very precise; indeed many substances are to be found in the same category even though of a different sort. For example, wax and honey are found in the juices which are usually together with opium and liquorice; the date seed, bitter cherry stones and peach stones are together with ivory and foxtooth; sulphur, lime and iron sulphate (Roman vitriol) are found in the earths together with arsenic and its sulphides *orpimento e risalgallo*⁴.

Finally, in the last two chapters there are indicated all the electuaries used at the time, together with the time of their duration. But under the denomination *Electovari* are to be found also poultices, ointments, honies and other substances or medicaments completely different from the electuaries.

The list finishes with the warning that the pharmacist should note down whatever opiate electuary he prepares, so that it will not be used for six months: this is for an improved efficacy of the medicament.

The second book, which makes up the real *Antidotario* includes 18 chapters entitled thus:

- I - on sweet lactovari (*de lactovari dolci*)
- II - on bitter lactovari (*de lactovari amari*)
- III - on opiate lactovari (*de lactovari oppiati*)
- IV - on lenitive and laxative medicines (*delle medicine lenitive et solutive*)
- V - on flavourings (*de conditi*)⁵
- VI - on purges (*de locchi*)⁶
- VII - on syrups and juleps (*delli sciropi et giulebbi*)⁷
- VIII - on reconstituents (*de robubbi o robbi*)
- IX - on trochisi (*de trocisci*)

- X - on inhalations and powder (*de suffuff et polvere*)⁸
- XI - on pills (*delle pillole*)
- XII - on sieffi (*dei sieffi*)⁹
- XIII - on eye-washes (*de collyrii*)
- XIV - on ointments (*delli unguenti*)
- XV - on poultices (*delli empiastri*)
- XVI - on oils (*delli olii*)
- XVII - on spetie of pictima (*di spetie di pictima*)¹⁰
- XVIII - on more cordial confections (*di più confectioni cordiali*)

The book closes with a note that many medicaments can be composed according to the fantasy of the doctor, but never of the pharmacist.

The third book mentions certain universal norms concerning the compositions and the modes of preparation, washing, incineration and the quantity of spices to be introduced in the various prescriptions. Besides there are descriptions of certain simples deserving of a *little attention*. Of the various ones one might cite:

Way of preparing wolf's liver (*el feghato del lupo*), used in illnesses of the liver. The entrails of the wolf drive away colic pains;

Rannich, astringent confection made up of raisins, gall nut and honey;

Way of preparing fox lungs (*modo a preparare el polmone della volpe*), used for difficulty in breathing and other pulmonary complaints;

Way of incinerating scorpions (*modo di incenerare gli schorpioni*) it was said served to liberate the body of every type of corrosive poison and from the plague;

Hysopo umida come si chavi; hysopo means oesypum, dirty wool (dirty; of sheep). Once fused with water and left to macerate for seven days, it was used in the place of our lanolin;

Burnt lead (*Piombo arso*), lead filings and sulphur liquified together. Refrigerating properties were attributed to it.

The book closes with the chapter *de pesi et varii nomi de quelli* (on the weights and their different names) where, besides the measures of the epoque, like grains of wheat, the scruple (weighing 20 grains), the medicinal sextary (which corresponded to two and a half pounds), there appeared the corresponding measures in arab.

Reading the *Ricettario Fiorentino* one deduces how great was the influence still in that period of the Arab school in medicine and pharmacy; it is enough to think that of the sixty electuaries mentioned, counting sweet, bitter and opiate, almost all are accounted for by Mesue and Nicolò; exactly 26 by one and 26 by the other. The others are : 5 from Avicenna, 2 from Rhazes and 1 from Albuchasis. Only in the laxative medicines do we find new medicaments or those derived from sources other than those mentioned above. We might recall the imperial pills of Nicolò Falcucci, used against the plague and made up of myrrh, crocus, Arminian bolus, amber and drupe; among the syrups one notes honey vinegar syrup made by master Cristoforo Giorgi, in use in Florence; finally, it is interesting to note that there is no mention of an eyewash by our doctors, but only the note, at the end of the chapter, to the pharmacist, not to make or send eye-wash which has not been ordered by a doctor, from the moment in which it is necessary to know well which medicaments to put in the eye, a too noble organ of our body.

The *Ricettario Fiorentino* had numerous editions or *compilations* and reprintings, in which the compilers made an effort to adapt the text to progress in science, abolishing the cumbersome Arab inheritance, and compile a text which was more correct and with more cure in terms of form, terminology and organisation of the material.

The second edition, of 1550, unfortunately nowhere to be found in its original printing, but of which posthumous reprintings exist (of which one, unique in the history of the Florentine Prescription Books, translated into Latin *ex Italico sermone Latini facti* by Carolus Clusius and published in Anvers, in 1561, with the title *Antidotarium sive de exacta componendorum*

miscendorum medicamentorum ratione libri tres, abbreviated as *Antidotarium Florentinum*), is very close to the preceding one.

However, the edition of 1567 was very innovative. Above all because it was sufficiently correct and also because it was composed, no longer by the College of Doctors, but by a Commission of twelve people nominated by the Very Serene Highnesses the Duke and the Prince of Florence and Siena, who approved it, on the request of the same Commission, thus rendering the *Ricettario* common, not only to all the pharmacists of the state, but also to all those who wanted it. From this came the ambition to transform the *Ricettario* into a National Pharmacopoeia, which registered the prescriptions of almost all medicaments *i quali hoggi per lo più sono in uso nelle spezierie italiane*.

The edition of 1573, was dedicated to and approved by the Very Serene Grand Duke and Prince of Tuscany, Cosimo de' Medici having been, in the meantime crowned as such and Florence having passed from being a Commune into a Medici state.

The main innovation was the introduction to the collections
a) of the Orders, capital Provisions, Statutes and Additions concerning Doctors, Pharmacists, and others included in the *Arte* and University of Doctors, Pharmacists and Merciai of the city of Florence newly posted in observance, and put together, *(Ordini, provisioni capitoli, Statuti, et Additioni attenenti alli Medici, Spetiali, et altri compresi sotto l'Arte, et Università de' Medici, Spetiali, et Merciai della città di Firenze nuovamente posti in osservantia, et ridotti insieme)*

b) of the Provisions and Chapters concerning the Corporation of the Pharmacists of the whole very happy Florentine Dominion, to the benefit of human life, including also the Provisions and Chapters concerning doctors and Pharmacists not only in the city of Florence, but in all its dominion: of the *Tara*, *Ricettario*, and *Matricole* and the Short Compendium of the Provisions, Chapters, Statutes and additions to observe by all Doctors, Pharmacists, Artisans included in those according to the will and mind of His Highness.

(Provisioni e Capitoli attenenti all'Arte delli Speziali di tutto il felicissimo Dominio Fiorentino, a beneficio della vita umana, comprendenti anche le Provisioni e Capitoli sopra li Medici e li Spetiali non solo della città di Firenze, ma di tutto il suo dominio: circa la Tara, i Ricettari e Matricole e il Breve Compendio delle Provisioni, Capitoli, Statuti, addizioni da osservarsi da tutti i Medici, Speziali, Artieri compresi in quelle secondo la volontà e mente di Sua Altezza.)

After the Constitutions of Fedrick II, these *Orders* were the first official regulation of the medical and pharmaceutical services.

Born with these were the *registers of the art*, that is, the Professional Orders of doctors and pharmacists, with the requisite subscription fee, the obligation to keep the *Ricettario* on the part of doctors and pharmacists, the charge, the inspections and the checking of places of sale, state exams - sellers of medicines had to be scrutinised (*squittinati*) by pharmacists selected by the drawing of lots - the fines, the proceeds of which were subdivided in four parts: one for the inspector, one for the tax collector, one for the public revenue and one for the Art of the Florentine pharmacists and punishment for those not observing the rules.

It was established that: the compositions are to be made, and made they must, well, net, stable, without deception, without macula and according to the order and mode of the *Ricettario*.

Le composizioni si facciano, e fare si debbano, buone, nette, stabili, senza frode, o macula alcuna, e secondo l'ordine e modo del Ricettario.

The pharmacist inspectors, in the case of default will have them condemned by the Consul or Rector and where, among the Pharmacists, Sellers, and Doctors fraud is discovered or whatever type of corruption, they will be punished in the way that the Rector deems right or likes as long as it does not go beyond the sum of ten scudi of *larghi* gold.

Faccino condannare dal Console o Rettore e dove in tra li Speciali, Venditori e Medico si trovasse frode, o corruttella alcuna, sieno puniti in quelle forme che al Rettore parrà o piacerà purché non passi la somma di scudi dieci d'oro larghi.

This regulation appears in all following editions: 1597, 1623, 1670, 1696, 1789.

The edition of 1670, dedicated to Grand Duke Cosimo III, seems much more ordered, correct and simple (e.g. the description of cinnamon occupies only half a page, whereas in the preceeding one five pages had been dedicated). New medicines of American origin come to be described here (*macioacan* or white rhubarb, *scarappa* or jalap, *sassafras*), but includes also certain particular prescriptions of remedies like the oils of Grand Duke, the anti-epileptic powder of the Grand Duchess, inventions of Francis I, and others of his predecessor Cosimo I. The way to distil water was added, with the accompanying figure of the stove and its refrigerant; the bain-marie or humid stove was described.

In that of 1696 we no longer find the special medicaments for venereal diseases, but besides this, important variations are not to be noted.

After two centuries pharmacy was still influenced by the convictions and superstitions of Dioscoride, Galen, Pliny, Serapione, Mesue, Avicenna, and the pharmacists had to know Latin well to read their works.

The last edition of 1789, compiled by order of Grand Duke Pietro Leopoldo, and printed after an interval of 93 years, is really new as a consequence of new systems of classification and chemical nomenclature and opens the series of modern pharmacopoeia of the 1800's and which already was inspired, no longer by old texts, but by modern illustrious examples of other countries: France, England and Germany which, in the meantime, already had official Pharmacopoeia.

This edition was renewed also in the presentation: the medicaments are no longer subdivided according to class, but placed simply in alphabetical order.

If in this edition many medicines were eliminated, considered superfluous, others were again inserted, such as scorpion oil, brick oil, red corals, mother of pearl, etc. But this was justified by the influence of past tradition.

The historical evolution of the *Ricettario Fiorentino* demonstrates how great the reforming spirit was in Florence in the medical and pharmaceutical sciences also in the hardest periods of the Signoria, which did not place restrictions and did not as it has been written, *clip the wings of every free flight*.

The diffusion, between 1500 and 1800 of the *Ricettario Fiorentino* in the western world and the recognition of its official character, to which is owed the consideration as first example of Pharmacopoeia, according to modern conceptions.

NOTES AND BIBLIOGRAPHY

1. *Lattovari* or electuary, from the Latin *electus* = chosen. Pharmaceutical form of soft consistency, made up of powders finely subdivided to which was added a syrup or honey.
2. Pharmaceutical form solid and dry, of conical shape, used prevalently for external use, also as an antidote.
3. The first book whose title is *Clavis sanatinis*, is a sort of botanical dictionary written by Simone da Cordo or Simone Genovese, Niccolò IV doctor from 1228 to 1292. The *Pandette* are the *Liber Pandectarum* composed by Matteo Selvatico in 1317; it is compilation of medical material in alphabetical order. The *Liber servitoris, seu liber de preparatione simplicium* by Albucasis, deals with herbal medicaments and their preparation.
4. Also *risagallo* or *risigallo*, red sulphide of arsenic.
5. Also conserves, made up of flowers, leaves, seeds, cores, roots, and barks of tree steeped in a liquor.
6. From the arab *La'oq* = lick. Medicament which is dissolved in the mouth or sucked slowly, prepared cooking together vegetable juices with sugar or honey or molassis.
7. From the arab *Jelab*, a potion prepared with honey and water.
8. In the text it is corrected as *sufuf*: very fine powder, impalpable, which was compared to motes.
9. *Sief* is an arab word which indicates a medicament for the eyes: it is the equivalent of a dry eye-wash.
10. *Epitema*: it was applied to the skin corresponding with the heart and the liver.

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Articoli/Articles

ULISSE ALDOVRANDI E L'ANTIDOTARIO BOLOGNESE

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SUMMARY

The first edition of the Antidotario Bolognese was issued in 1574, having been compiled by a Medical Committee presided by the protophysician Ulisse Aldovrandi. Many extended and revised editions followed up to the nineteenth century, when the book fell progressively into disuse.

Numerosi furono i compendi terapeutici compilati in forma divulgativa in epoca medievale nel tentativo di disciplinare la *materia medica*. Famosi in particolare (oltre ai *Grabadin* di Sabur Ibn Sahl, Serapione il Vecchio, Mésue il Giovane) furono i ricettari del diacono milanese Crispo (VIII sec.), di Nicolò Salernitano (XII) e di Nicolò Alessandrino (XIII), che proponevano a medici e a speciali formule proprie o riportate dalla tradizione classica¹.

Le molteplici contraffazioni, omissioni e sostituzioni operate da ciarlatani ed empirici intraprendenti, che spacciavano per rimedi provvidenziali miscugli inutili, se non tossici, portarono le Corporazioni a sentire l'esigenza di fissare norme ben definite di composizione e preparazione dei farmaci, regolamentando, inoltre, la qualità e il peso degli ingredienti.

Nacquero così dei veri e propri formulari ufficiali, primo fra tutti quel *Novo Receptario composto dal famosissimo Chollegio*

Parole chiave/Key words: Pharmacopoeia - Bologna - Aldovrandi